

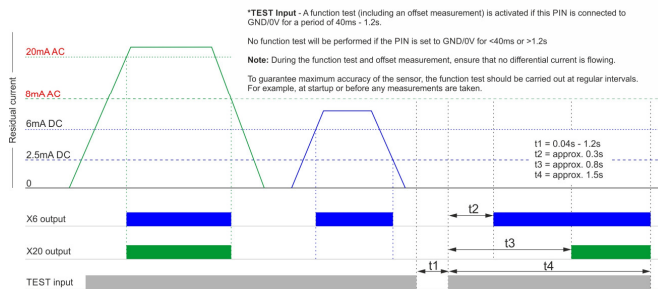


*exc. any pins

- Designed for **Mode 2** Electric Vehicle charging systems (as per IEC 62752 and partly combined with UL 2231-2)
- Fixed** 6mA DC and 20mA AC trip levels
- 3000A surge withstand capability
- Suitable for single phase or three phase loads rated up to 32A
- Built-in current sensor and 4 integral primary conductors provide a convenient easy to fit solution
- Designed for direct mounting on to PCB
- 2 x 4-way male pin header connector exiting on the underside of housing
- 5V DC operation
- "Test" input
- 3 Open collector outputs – "6mA", "20mA" and "Fault"
- PWM output for monitoring purposes
- Auto-resets when fault removed



FUNCTION DIAGRAM



INSTALLATION

- BEFORE INSTALLATION, ISOLATE ALL SUPPLIES.
- DO NOT install the unit in close proximity to equipment generating high magnetic fields.
- For safety reasons the insulator plug must be fitted before applying power.

Applying power.

- There are no visual indicators or user adjustments. As soon as power is applied the device will begin monitoring for leakage current.

Troubleshooting.

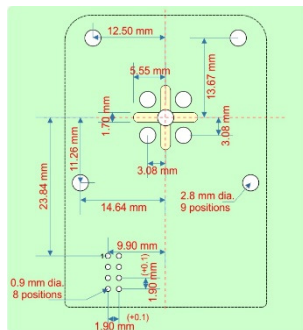
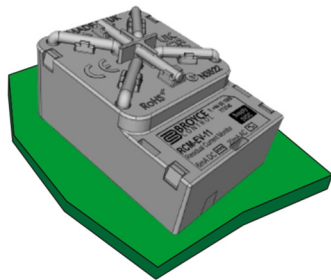
- If the unit fails to operate correctly check that all wiring and connections are good.



Installation work must be carried out by qualified personnel.

MOUNTING & PCB FOOTPRINT

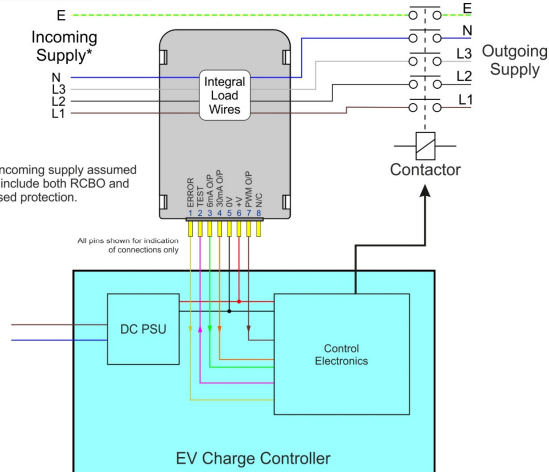
The RCM-EV-11 is designed solely for mounting on a PCB.



Note: Careful attention to the PCB track design (i.e. thickness and width) must be taken in to consideration since the primary conductors can influence each other due to self-heating and thermal exchanges. The EV charging equipment manufacturer remains responsible for the thermal design.

CONNECTION DIAGRAM

Typical connection example for a 3-phase EV supply



TECHNICAL SPECIFICATION

Auxiliary supply:

Rated voltage U_s (5, 6): 5V DC (90 – 110% of U_s)
Power consumption (max.): 0.6W

Monitored circuit:

Rated current I_n : 32A³
Rated voltage U_n : 230/400V AC
Rated frequency: 50/60Hz

Trip and time delay characteristics:

Sensitivity/Trip level $I_{\Delta n}$: 6mA DC / 20mA AC (fixed)
Residual non-operating current: 0.5 x $I_{\Delta n}$
Reset level: 2.5mA DC / 8mA AC
Unit resets automatically when current drops below this level

Max. operating time for suddenly applied residual current (as per IEC 62752 (UL 2231-2))

	Sinusoidal AC:		Smooth DC:	
	30mA	60mA	6mA	30mA
	0.3s (0.5s)	0.15s (0.2s)	10s ² (12s ²)	0.3s (0.7s)
	0.04s (0.05s) ¹	0.04s (0.05s) ¹	0.04s (0.02s) ¹	0.04s (0.02s) ¹

¹ actual operating time $\leq 0.025s$ ² actual operating time $\leq 0.5s$

Accuracy:

$\pm 10\%$

Inputs/Outputs:

Connection type: 2 x 4-way pin header
TEST input (2): Active low (internally pulled to +V)
Test input pulse width: 0.04 – 1.2s
ERROR output (1): Open collector
6mA output (3): (Max. rating 45V DC, 100mA)
20mA output (4): Internally pulled to 3.3V
PWM output (7): Output proportional to smooth DC residual current
PWM Frequency: 8kHz ± 200 Hz
PWM Duty cycle change: 3.3%/mA i.e. 20% duty cycle @ $I_{\Delta dc} = \pm 6$ mA

Environmental/General:

Ambient temperature: -40 to +85°C
Storage temperature: -40 to +85°C
Relative humidity: Max. 75% @ 40°C
Overvoltage category: III
Pollution degree: 2
Dielectric strength: 4kV rms (between primary conductors and LV pin header)
Altitude: Up to 4000m above sea level
Ingress protection rating: IP20
Housing: Grey flame retardant Lexan UL94 V0
Weight: ≈ 45 g
Mounting: PCB
Approvals: Conforms to: IEC 62752 (partly combined with UL 2231-2)
CE, UKCA and RoHS Compliant.

Numbers in brackets refer to pin numbers on the connector

³Temperature of integrated primary conductors should not exceed 105°C

SOLDERING PROCESS

Recommended process: Wave soldering only
Heating temperature: 260°C
Heating time: 5s max.

Note:

The detachable insulator plug (see drawing below) must be removed prior to soldering.
These products are not suitable for re-flow soldering.

DIMENSIONS & CONNECTOR PIN-OUT

